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## THE FINSEN LIGHT TREATMENT

By GUNNI BUSCK

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I WILL at first remark that what we usually call "light" is composed of a series of rays of considerably different propensities.

If we let the sunbeams fall through a glass prism, they become broken in the prism; and if these rays are intercepted upon a white screen, an oblong band of color, colored as the rainbow, from red to violet, will be seen. Besides this visible part of the sun's spectrum, a quantity of invisible rays fall upon the screen, which, according to their relative position to the visible rays, are called respectively the ultra-red and the ultra-violet rays. The presence of the first can, for instance, be shown by placing a thermometer a little distance beyond the red end of the visible spectrum; the mercury will then be observed to rise through the effect of the heat of the invisible rays. The ultra-violet rays can be easiest shown upon a portion of photographic paper, which rapidly becomes darkened through their agency. The blue, violet, and ultra-violet rays are often comprised under the name of the "chemical rays," and it is the biological effect of these that Professor Finsen has studied, and has with such undoubted success given a place in the science of practical medicine. The first thing he called attention to was the fact that these chemical rays have an injurious influence upon the course of different infectious diseases. The best known example is smallpox, where the most feared phase of the illness, the time of supuration, is due to the effect of the chemical rays, and can therefore be absolutely avoided if the patient is protected against them. The easiest way, but also the most depressing for the patients, would be to keep them in an entirely dark room. The red rays of light, however, do no harm; it is sufficient if the windows and doors of the room be covered

with a sufficient thickness of red cloth, so that absolutely no other than the red rays can penetrate. In other words, the patient must be protected against the light in the same manner as a photographer protects his plates when developing them. It has been shown that in this manner we may alleviate the disease and shorten its course, and also save the patient from being disfigured for life by the scars.

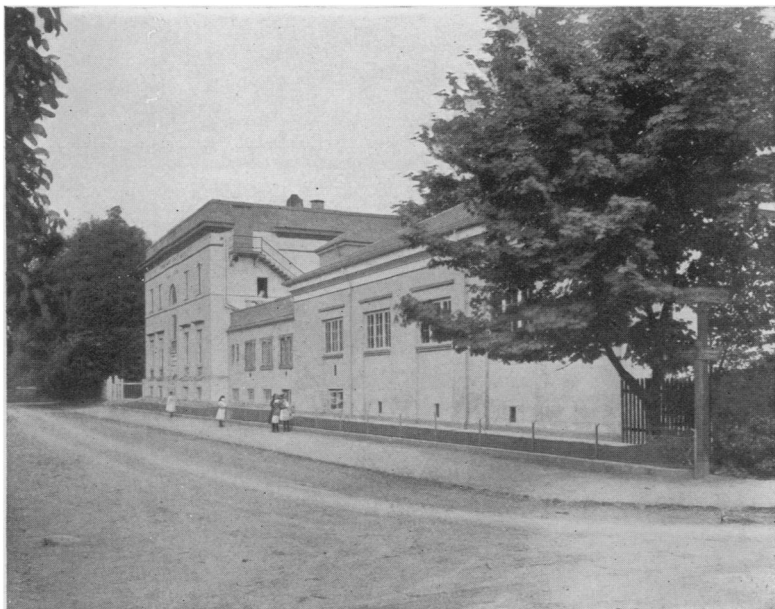
Besides this so-called "negative phototherapi" Professor Finsen has introduced a positive, showing how a number of different skin diseases can be cured by the aid of the chemical rays. The method is based on the following facts: that the chemical rays kill germs, that they penetrate some depth into the skin, and that they produce an inflammation. The characteristic of this inflammation is that it does not appear until five or six hours after being subjected to the light, and when it subsides it leaves a brown coloring of the skin more commonly known as "tan," or "sunburn," which is first caused by the effect of the chemical rays of the sunlight. The finest results are obtained from the treatment of "*lupus vulgaris*," a tuberculous skin disease that is apparently more prevalent in Europe than in America. I have no doubt, however, that this disease is so well known to the readers of this paper that a description of it is unnecessary. Those who have once seen the disfigured face of a "lupus" patient will certainly never forget it.

To insure the "light treatment" being a success a strong light is required; the stronger it is, the better will be the results; and to secure this very powerful electric lamps are employed. The rays are concentrated by means of a large apparatus similar to a telescope, and are directed upon a small spot of the diseased skin of the patient. On this spot is placed what is called a compressor, which is an apparatus composed of two round crystal plates enclosed in a metal ring; between these two plates is continually passing cold water, thus insuring a cooling of the skin and at the same time keeping the blood away from the spot being treated. Every little spot is subjected to the light for an hour's duration. The treatment is painless, but requires skill and patience on the part of the hospital nurse, who holds the pressure-glass in place, and who incessantly has to take particular care that the light is kept on the exact place on the patient's skin previously marked by the doctor.

Professor Finsen originally established his treatment in a pavilion in the grounds of the "Commune Hospital" in Copenhagen, but owing to the increasing number of patients and the want of space it was impossible to treat them all, and consequently a large number had to be refused, but shortly after this the State offered a loan, free of interest, of seventy thousand dollars (two hundred and fifty thousand kroner) to assist in the building of the present "Finsen's Light Institute,"



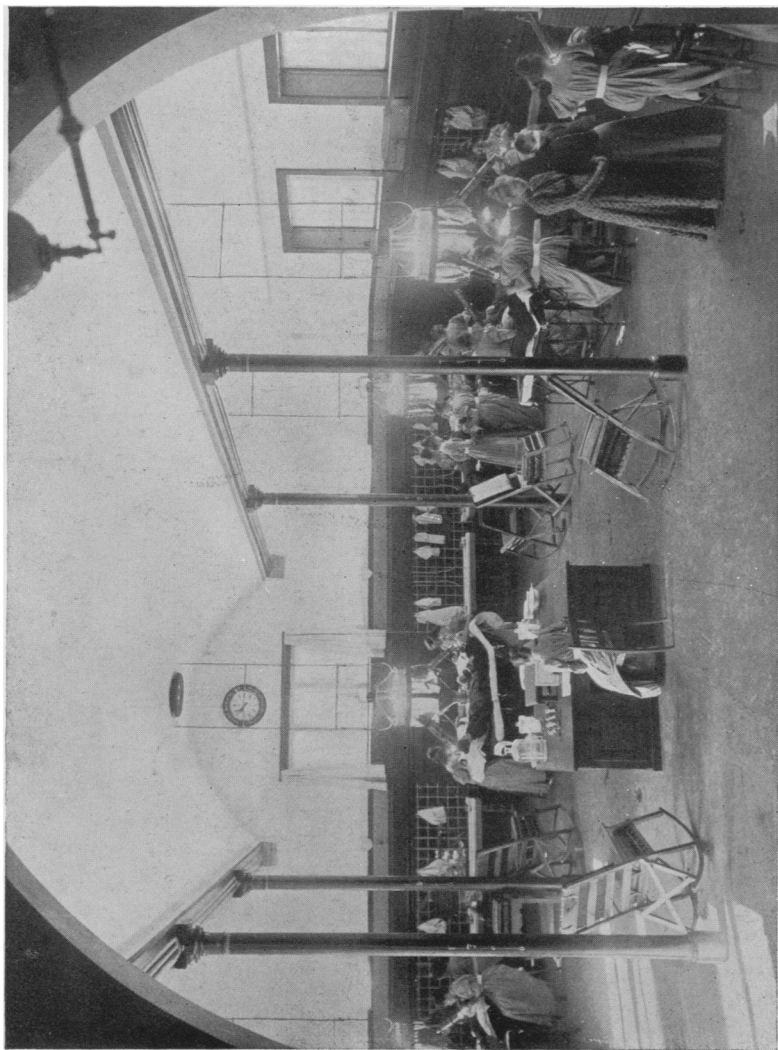
PROFESSOR FINSEN



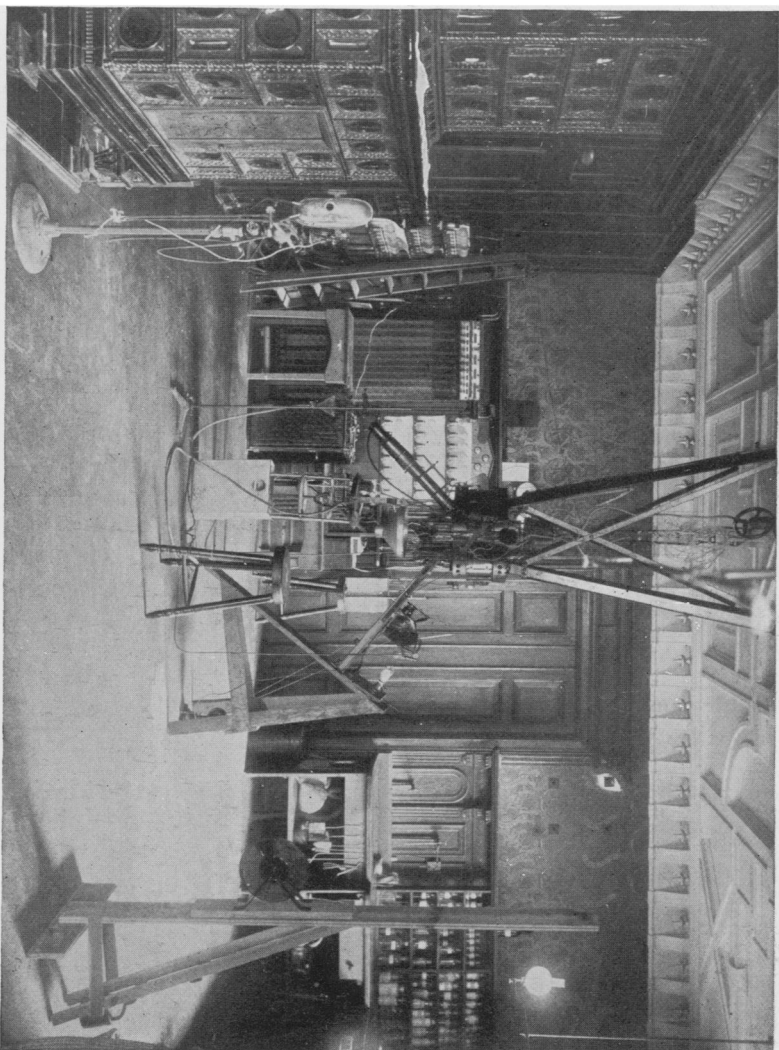
THE FINSEN INSTITUTE



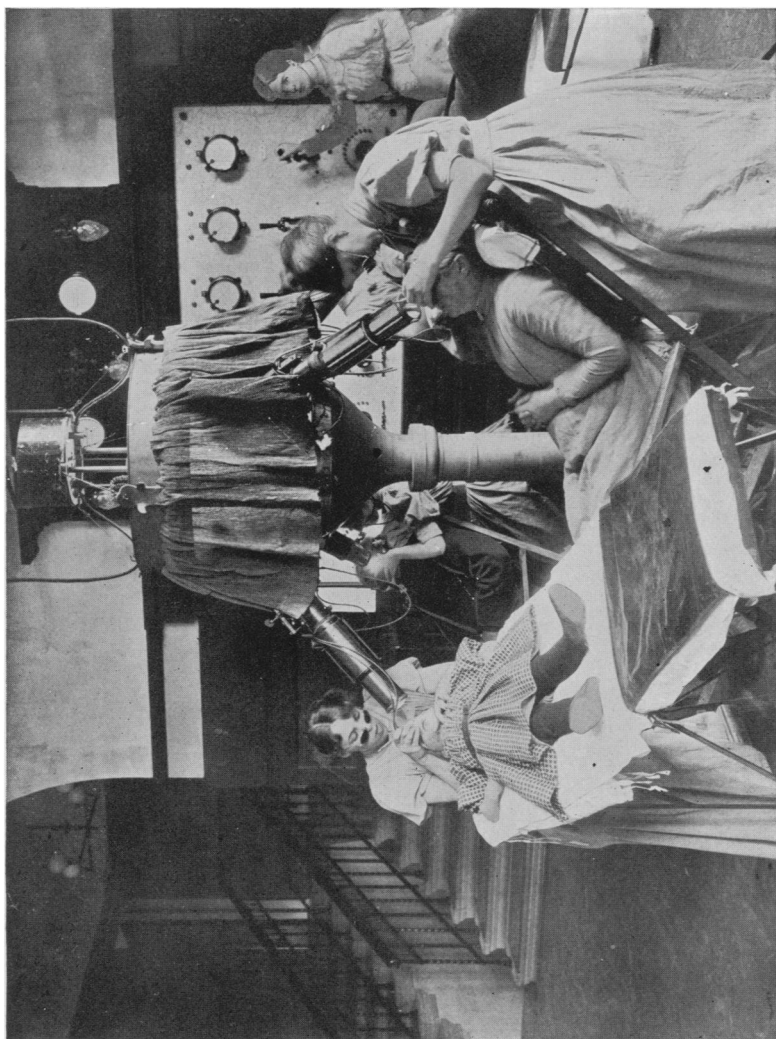
FINSEN'S PRIVATE HOUSE WITH THE LABORATORY



THE GREAT HALL FOR LIGHT TREATMENT



ONE OF THE ROOMS IN THE LABORATORY



ONE OF THE LAMPS



which is situated in one of the most pleasant villa quarters of Copenhagen.

It is a brilliant scene that greets one on entering the large hall for light treatment. The room is lighted by seven powerful electric arc-lamps, and at each of these are sitting or lying four patients, who are attended by as many nurses. Of course, most of the patients are Danish, but there are also a great many foreigners who come from all parts of the civilized world to be cured of their dreadful disease, and when passing through the hall animated conversations can be heard in Danish, English, French, German, etc. So far fifteen hundred patients have been treated, of whom one thousand suffered from *lupus vulgaris*, generally poor people without means, who were treated gratuitously or were assisted by private benevolence.

Besides the before-mentioned "local treatment," which has already given such wonderful results, other forms of light therapy are tried. The flat roof of the main building is fitted for sun-baths, and below is a large room where anæmic and other patients can bathe in the beams of an enormous electric arc-lamp of one hundred and fifty ampères, which has the same influence as sunlight.

To the institute is attached a large and well-appointed laboratory, where Professor Finsen and some assistants continue his scientific examinations of the biological influences of light. At the institute are employed about a dozen physicians and about fifty nurses—light-fairies, as they are called. The working time of these is from six to seven hours daily. They do not live at the institute, but there are dressing-rooms, a dining-room, and a comfortable sitting-room at their disposal.

The "Finsen Light Treatment," which was regarded so skeptically during its first years, is now universally recognized as a power for good; "Light Institutes" are being built in many of the larger cities of the world, and the number of diseases taken in under the light treatment is ever increasing.

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## THE WORLD'S WAR AGAINST CONSUMPTION

COMPILED BY L. L. DOCK

(Continued from page 610)

"IN how many cases which come under your observation can you provide the most modern and most successful methods of treating consumption? From the experience I have had myself as a medical worker among the consumptive poor I should venture to say that you come in contact with three classes of consumptives, and each class, to my mind